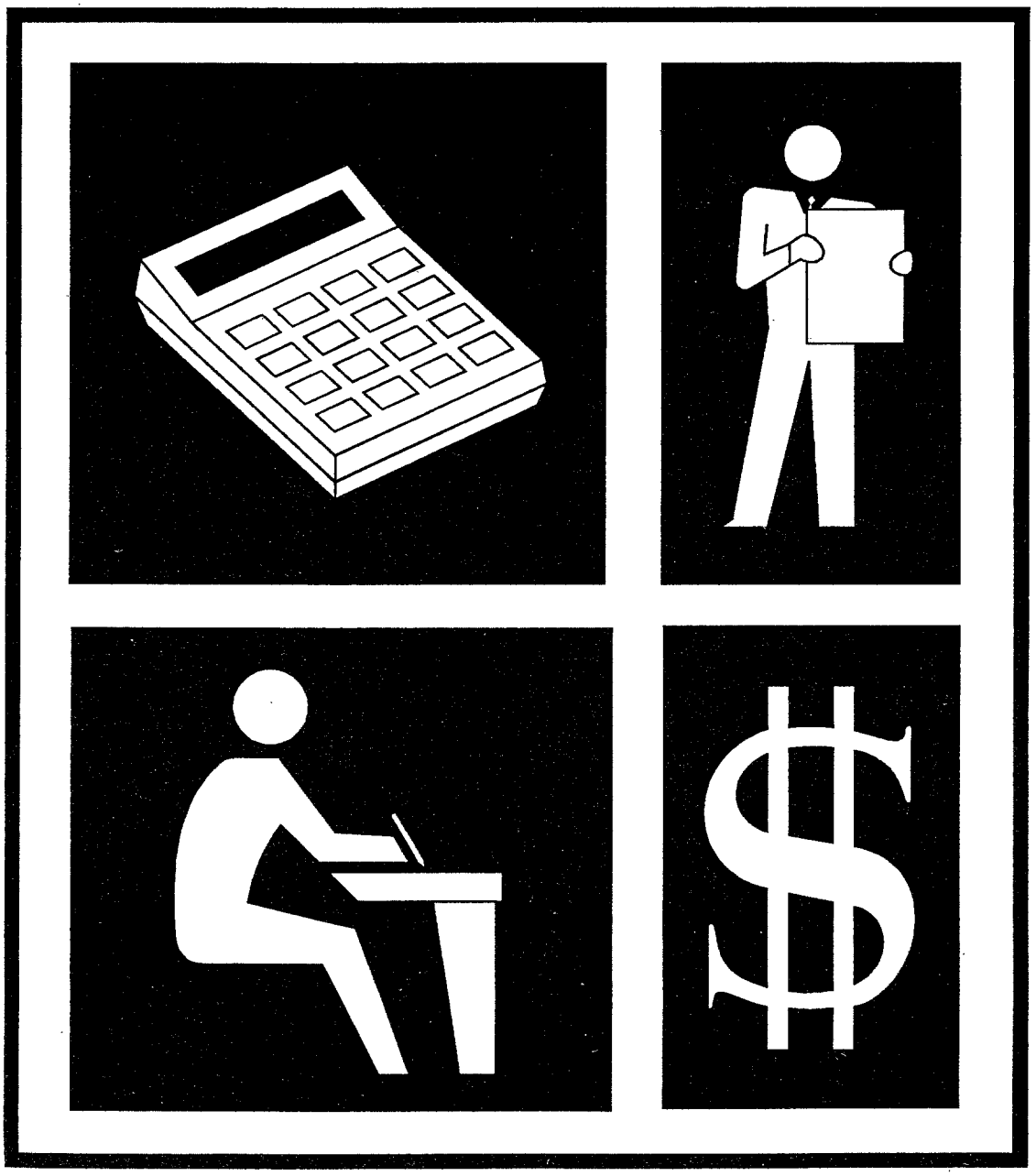
A University of Tennessee
Muncipal Technical Advisory Service
workshop

Managing Your Utility's Money

The Trainer's Manual



164 p.

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Agency

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ABSTRACT

How can communities protect their multi-billion dollar water and wastewater treatment investments and give citizens clean, safe water? The key lies with municipal officials' ability to acquire sufficient operating revenues.

Sound financial management allows communities to acquire the necessary revenues to maintain financially self-sufficient water and wastewater operations.

The best source of revenue for paying water and wastewater treatment costs is user fees. Unfortunately, raising user fees is one of the most dreaded actions undertaken by local officials. If is not done correctly, the resulting political backlash and public resistance can be harmful for water and wastewater operations.

The purpose of this workshop is present financial management and user fee information for local officials. These seminars provide local officials with information they can understand and use in improving the financial health of water and wastewater treatment operations. The workshop will help participants establish sound financial management practices, assess the financial health of water and wastewater systems and raise revenues through increasing user fees.

ACKNOWLEDGEMENTS

This notebook was prepared by Haig Farmer of the United States Environmental Protection Agency and Sharon Rollins of The University of Tennessee Municipal Technical Advisory Service. This notebook is available as EPA Office of Water publication number EPA 430/09-91-014.

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I.A. WELCOME

Notes:

1. *Before the workshop, meet the EPA regional office staff who will be introducing the workshop. Ask that person to introduce him/herself and to provide welcoming statements at the beginning of the workshop.*

   a. *Point out rest rooms and temperature controls.*
   b. *Make recommendations about getting around in the city, where to eat, etc.*

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I.B. TRAINING TEAM

Staff from The University of Tennessee Municipal Technical Advisory Service (MTAS) will lead this seminar. MTAS provides technical assistance to Tennessee cities and towns in the areas of finance and accounting, law, engineering and public works and municipal management.

MTAS provides field based assistance, sponsors and administers research projects, produces publications and houses a technical reference library.

Your participation in this course is vital. Please feel free to share your own experiences, comments and questions during the workshop

Have each training team member introduce the other. Keep academic background discussion short. Tell something about the person's involvement in a situation to improve financial management in a community.

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I.C. WORKSHOP OBJECTIVES

(1) **To emphasize that communities' ability to protect their investment in water and wastewater infrastructure and to maintain sound operations depends on generating sufficient operating revenues.**

(2) **To emphasize that the best source of revenues is user fees.**

(3) **To demonstrate how to determine if a financial management system is healthy.**

(4) **To demonstrate how to evaluate a user service charge system.**

(5) **To demonstrate how to determine rates through use of a computer rate model.**

(6) **To demonstrate how to sell a rate increase.**

Post these objectives on a flip chart sheet and place them where they can be seen throughout the day. Periodically refer back to the objectives and check whether they are being met.

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I.D. WORKSHOP AGENDA

8:30 - 9:00	Registration
9:00 - 9:30	Introductions and Workshop Objectives
9:30 - 9:45	The Importance of Good Financial Management
9:45 - 10:30	Principals of Good Financial Management
10:30 - 10:45	Break
10:45 - 12:00	Evaluating User Service Charge Systems
12:00 - 1:15	Lunch
1:15 - 2:15	Determining User Service Charge Rates
2:15 - 2:30	Break
2:30 - 3:30	Selling a User Charge Increase to Customers
3:30 - 4:00	Summary

Briefly refer to the agenda and mention breaks and refreshments.

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I.E. PARTICIPANT INTRODUCTIONS

Notes:

This is an important part of the workshop. The object is make participants comfortable enough to begin talking and interacting. The workshop will be much more beneficial to everyone if participants will begin sharing their own experiences about the topic.

One approach to use: Ask participants to look around and find someone they do not know; introduce themselves to that person; tell each other where you work, why you need information on financial management. Ask them to introduce one another to the group.

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II. THE IMPORTANCE OF GOOD FINANCIAL MANAGEMENT

A. WHY COMMUNITIES MUST WORK HARDER AT FINANCIAL SELF-SUFFICIENCY

B. THE IMPACT OF FINANCIAL SELF-SUFFICIENCY ON COMMUNITIES

C. HELP FOR COMMUNITIES

D. WHAT COMMUNITIES MUST DO

Tell the topics that will be covered in this session

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II.A. WHY COMMUNITIES MUST WORK HARDER AT FINANCIAL SELF-SUFFICIENCY

- *The 1987 Clean Water Act amendments place more financial responsibility for wastewater facility construction on local governments.*

- *EPA grants (for facility construction) are no longer available; SRF loans are available, but the entire principal and interest must be repaid over a 20 year period.*

- *The loaners (EPA and states) must have assurance that the borrower is a good risk; i.e. they must have assurance that the borrower is able to make repayments.*

- *This leads to greater front-end scrutiny of the borrower's user charge system.*

- *User charge systems are the principal method enterprise fund operations have for raising revenues.*

- *Water and wastewater operations are usually run as enterprise funds. This means that the operations are run as a self-supporting business.*

* **1987 Clean Water Act Amendments**

Out with Grants

In with SRF Loans

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- *Use Overhead # 1*

- *Since 1972 these amounts have been spent in the EPA Construction Grants program.*

- *All that federal and state grant money had the effect of reducing user charges by an average of 50%.*

* **$ Spent in the Wastewater Grants Program Since 1972**

Federal	**$53 Billion**
States	**$20 Billion**
Local	**$20 Billion**

- *The most recent EPA Needs Survey shows that we still have $83 billion in wastewater facility needs in this country.*

- *So, almost as many needs exist today as all the funded needs during the last 18 years.*

- *In the past 18 years, local governments had a chance of getting grants to help meet these needs. Now about the best they can hope for is a low interest loan.*

- *And even loans are short of anticipated levels. The SRF loan program was to provide $18 billion in capitalization grants to states through 1994, but FY89-90 appropriations were 20% short of the authorized level.*

* **$ in Needs for Wastewater Facilities**

Wastewater Needs	**$83 Billion**

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II.B. IMPACT OF FINANCIAL SELF-SUFFICIENCY ON COMMUNITIES

- *So, how are local governments handling this new reality? Not well!*

- *Even before the demise of grants, state and local governments finances were awash in red ink.*

- *Use Overhead # 2*

- *Whereas, state and local government budgets showed a $5 billion surplus in 1986; they showed a $45 billion deficit in 1990.*

* **$5 billion surplus in 1986 to $45 billion deficit in 1990**

- *Use Overhead # 3*

- *An EPA study showed that 37% of the EPA wastewater funded systems are not collecting sufficient revenue from user service charges and hookup/impact fees to cover operating cost.*

- *The average shortfall in these inadequately funded systems is 25%.*

- *As communities assume more of the burden of capital projects as well as operation and maintenance costs, they must raise user charges.*

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* 37% EPA wastewater funded systems experiencing shortfalls in revenue

* Water systems confront new monitoring costs

- *Amendments to the Safe Drinking Water Act equate to new monitoring requirements for water systems. The associated costs will surely require those water systems to generate additional revenues.*

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II.C. HELP FOR COMMUNITIES

- *There are some resources for local governments. They are not grant dollars, but these resources can help local governments use their dollars more wisely.*

- *Use Overhead # 4*

- *One important resource is the Small Communities Outreach and Education Program - SCORE.*

- *One way SCORE can help is through providing information on complex issues in simple, easy to understand language. The booklets found in your notebooks are examples. (Hold up one or more examples).*

- *Another way is through SCORE Coordinators in the state and EPA Regional Offices. Ask the SCORE coordinators to stand. Ask if there is anything they want to say about how SCORE helps local governments.*

* **Small Communities Outreach and Education Program (SCORE)**

Informational Assistance

EPA Regional Office Coordinators

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- *SCORE facilitates networking through other federal agencies and national organizations. (List the FmHa, HUD, WPCF, AWWA, other environmental and civic groups). They are in touch with these organizations and offices. They share information and experiences. They attend conferences and exchange publications.*

Networking other Federal and National Organizations

- *Overhead # 5*

- *And they provide assistance through the National Small Flows Clearing House. List some functions, such as - toll free no. -- 1-800-624-8301, publication, user charge survey analysis, etc.*

National Small Flows Clearing House

1-800-624-8301

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II.D. WHAT COMMUNITIES MUST DO

- *Communities need to undertake major tasks. They must improve financial management of their water and wastewater operations. This probably means they need to raise user service charges.*

- *The rest of this workshop will show the steps local governments need to take to accomplish these things.*

- *It will show you how communities accomplish this task.*

* **Implement Financial Self-Sufficiency**

Improve Over-All Financial Management

Raise User Service Charges

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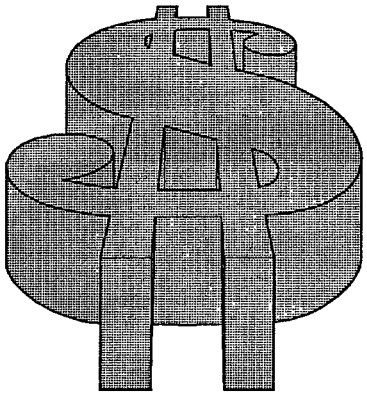


SPENT IN THE WASTEWATER GRANTS PROGRAM SINCE 1972

FEDERAL	$53 BILLION
STATES	$20 BILLION
LOCAL	$20 BILLION

FIGURE1

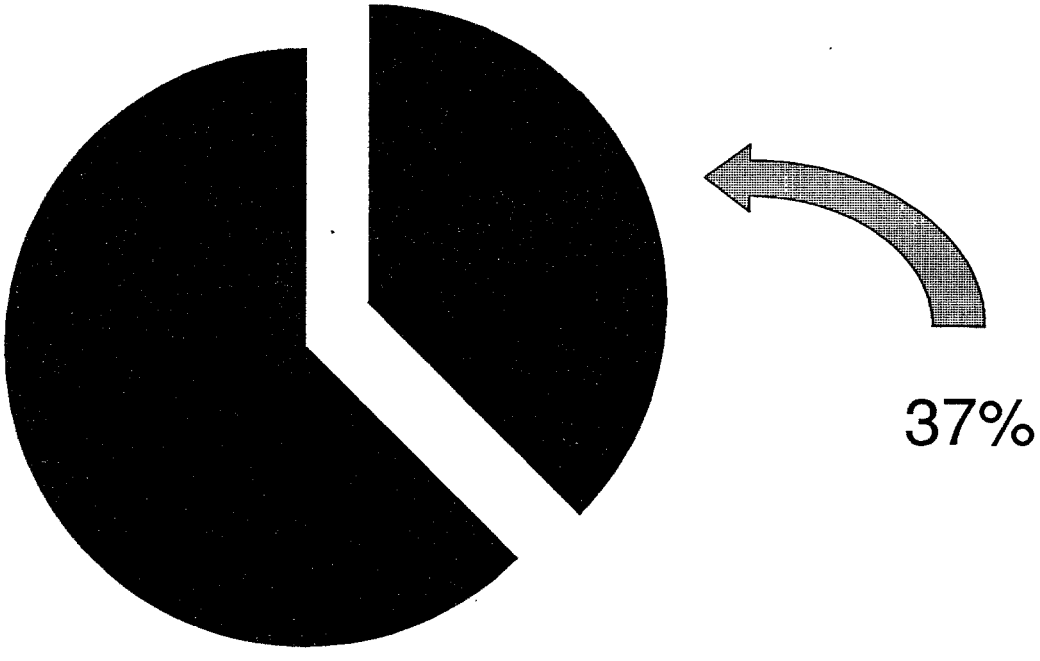
THE CHANGE IN LOCAL GOVERNMENTS' BUDGETS

1986 + $5 BILLION

1990 - $45 BILLION

FIGURE 2

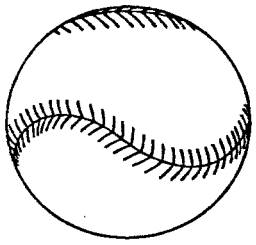
37%
OF EPA-FUNDED SYSTEMS EXPERIENCE SHORTFALL IN REVENUE



EPA-FUNDED SYSTEMS

FIGURE 3

SMALL COMMUNITIES OUT-REACH EDUCATION PROGRAM



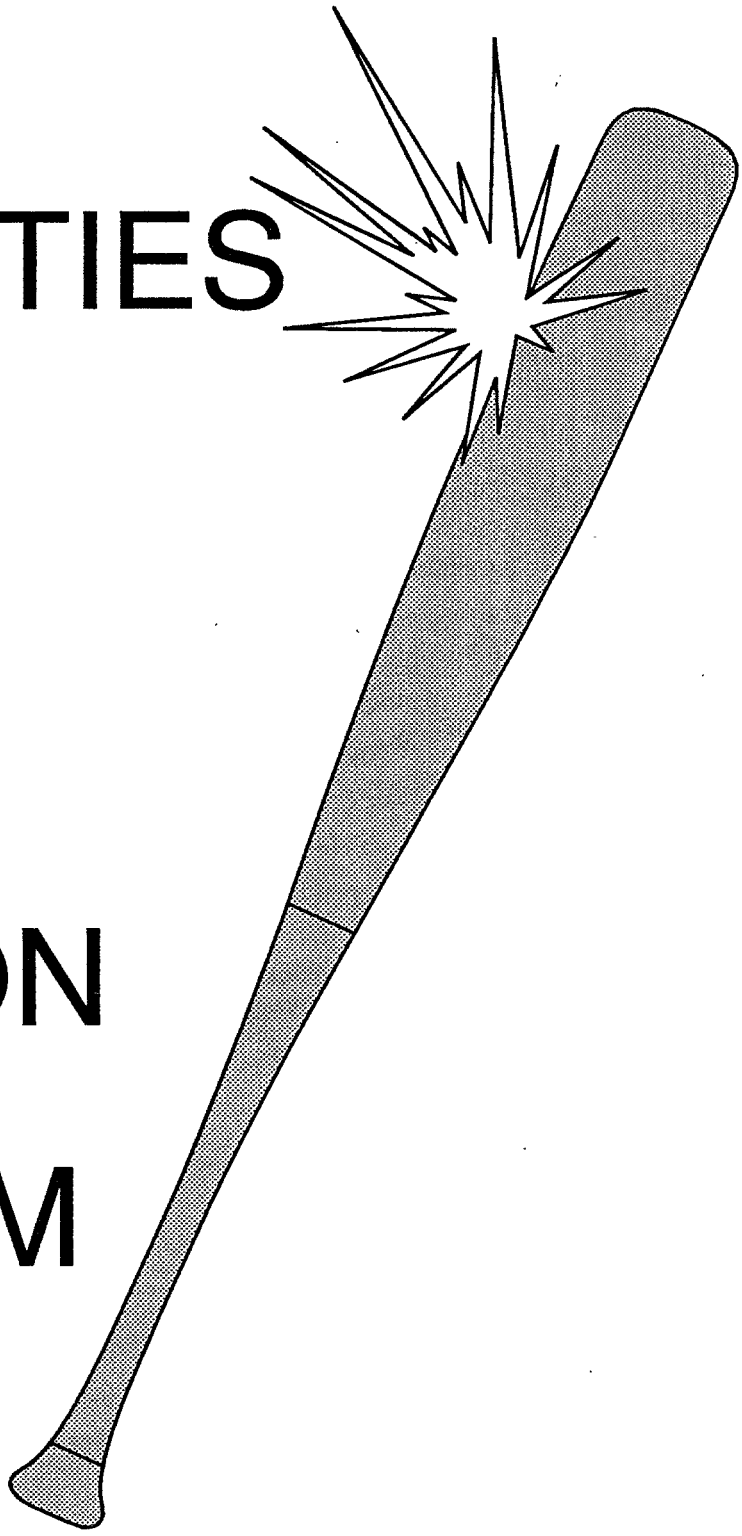


FIGURE 4

NATIONAL SMALL FLOWS CLEARING HOUSE

1-800-624-8301

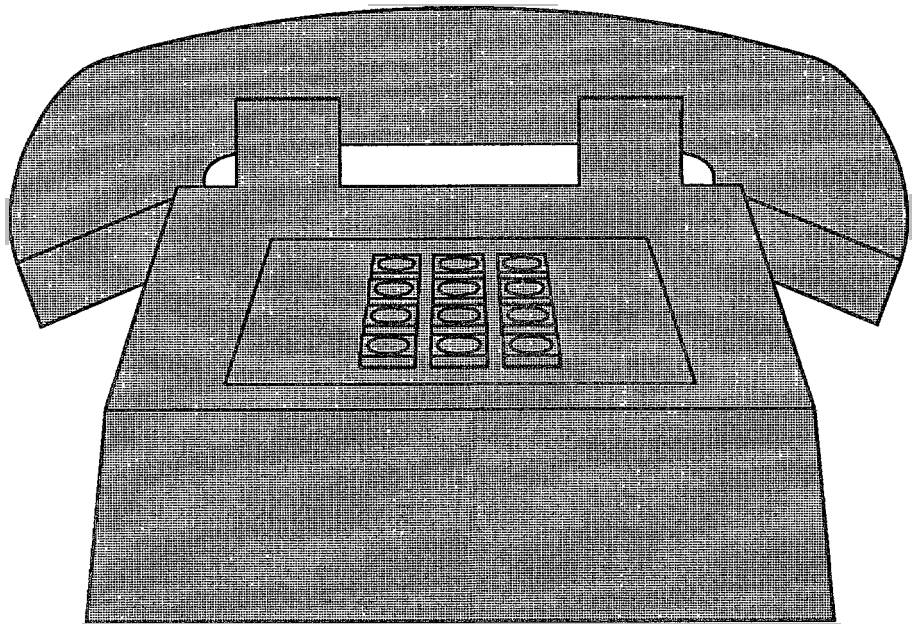


FIGURE 5

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III. PRINCIPALS OF GOOD FINANCIAL MANAGEMENT

A. CHECK FINANCIAL HEALTH

B. IMPROVE FINANCIAL HEALTH

C. BUILD FINANCIAL HEALTH

D. ADDITIONAL FACTORS THAT AFFECT FINANCIAL HEALTH

Tell the topics that will be covered in this session

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III. PRINCIPALS OF GOOD FINANCIAL MANAGEMENT

A. CHECK FINANCIAL HEALTH

* Introduction

- *Many people find financial terms confusing. The language of accountants and auditors is often technical and intimidating for non-accountants. But, even if you have no experience with financial terms, you already know some important basics about finance. You have certain expenses like rent, food, utilities and so forth to pay each month. You know how much money you'll earn each month. You know how to balance expenses and income. This section will present some simple financial management tools that are easy to apply to check the financial health of a water or wastewater utility.*

- *A financial health check lets you gage the health of your utility's operation, and its helps you take corrective measures to make sure your operation is self-supporting.*

* Ratios

- *Ratios are quick ways of checking on the financial health of a utility operation.*

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- *There are several financial ratios which indicate different aspects of a system's financial health. Ratios can be easily calculated from the wastewater system's accounting records. This section will go through the process step-by-step.*

- *By calculating ratios every month, you can build a financial trend. This trend will provide a quick assessment of past operations in a simple, easily understood manner. Ratios can be plotted on a graph to provide a visual display of financial health over time.*

- *Trends also allow you to project what will happen next month ... the next two months and so forth. They give an early warning signal of corrective actions that you should take ... like, raising revenues or cutting expenses.*

- *Ratios can be used to compare operations of one utility with another.*

- *If your utility combines the accounting for water and wastewater operations, you will need to segregate water revenues from wastewater revenues and water expenses from wastewater expenses before calculating ratios.*

* Definitions

- *Before we begin calculating ratios, we will need to cover some basic financial terms. These terms show up on utility financial records.*

- *Use Overhead # 6*

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- *Revenue is system income primarily from user service charges. Operating revenues also come from special charges such as hookup and impact fees, interest income from investments, late payments, penalties and forfeited meter deposits. In some older systems, taxes and assessments are revenue sources.*

- *User Service Charge. The User Service Charge (USC) is the largest revenue source. It is the fee charged users for the collection and treatment of wastewater (or the treatment and distribution of water).*

- *Hookup/Impact Fees. Hookup fees are charges for new customers connecting to existing water and sewer lines. An impact fee is a charge, usually imposed on developers, to compensate the system for the impact of growth on the system's infrastructure.*

- *Taxes/Assessments. Taxes/assessments usually pertain to older water and wastewater systems that use property taxes or front footage assessments (or some other basis of assessment) as revenues.*

- *Interest Earnings. Interest income comes from investments like checking accounts, savings accounts and treasury bills.*

- *Other revenue sources may include sales from treatment by-products such as sludge compost, or the penalties charged for not paying the sewer bill on time.*

- *Use Overhead # 7*

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- *Operating Expenses are the full cost of operating your system. They include salaries and benefits, administration costs, utility costs, chemicals, supplies, equipment replacement costs, and the principal and interest payments on debt.*

- *Salaries and Benefits are the largest costs for most operations. This includes wages and fringe benefits earned by employees... regular pay, overtime, sick and annual leave, health benefits, bonuses, longevity pay and so forth.*

- *Administration Costs are the costs associated with providing facilities for conducting business, liability insurance, postage and so forth.*

- *Utilities. These costs are for utilities associated with the operation ... such as water, electricity, gas and fuel oil. Electricity keeps pumps pumping. Gas may be used for heating or perhaps in burning sludge. Water is used throughout the plant.*

- *Chemical Costs include all chemicals necessary for the operation.*

- *Equipment Replacement Costs are the costs of obtaining and installing equipment or accessories necessary to maintain the capacity and performance for which the treatment facility was designed and constructed. Some equipment such as motors will wear out and must be replaced during the life of the treatment facility. This should not be confused with normal maintenance expenses. Annual contributions to a separate equipment replacement fund is an excellent financial management practice.*

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- *Principal and Interest. The repayment of principal and associated interest on debt are considered an operating cost. This is also called debt service costs.*

- *Supplies and Parts include lab supplies, gaskets, belts, lubricants and so forth.*

- *Other. There may be other expenses such as contracts for equipment service, engineering services and so forth.*

- *A word about what operating expenses do not include. They do not include the cost of new capital facilities such as more treatment capacity or additional lines. They also exclude depreciation. Depreciation is an estimate of how much value the utility's plant and equipment lose in a given time period. Since municipal utility operations are generally not required to provide money to cover depreciation, it is not counted as an operating expense.*

* **Operating Ratio**

- *Use Overhead # 8*

- *Now, we are ready to compute the operating ratio. Operating ratio is total revenues divided by total operating expenses.*

- *An operating ratio of 1.00 is the minimum acceptable for a self-supporting utility. Anything less than an operating ratio of 1.00 spells financial trouble.*

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- *The operating ratio must be greater than 1.00 if the utility has outstanding debt.*

- *Since monthly revenues and operating expenses vary widely, it's best to calculate the operating ratio on a year-to-date basis.*

- *Pay attention to the trend in operating ratios from year-to-year. A steady or upward trend in the operating ratio indicates good financial health. If the ratio trend is falling, you need to take action to get the utility back in good financial shape.*

- *Charting the operating ratio history gives a quick visual assessment of how you are doing.*

- *Use overhead # 9*

* **Coverage Ratio**

- *Coverage ratio measures whether the utility operation has enough revenue to pay its debt service (principal and interest) on its loans and bonds and still have enough money left to cover contingencies. Contingencies are unexpected problems. An example is a natural disaster.*

- *Lenders and bond agencies are particularly interested in the coverage ratio because it indicates whether money will be available to pay off debt service if the utility operation incurs unusual expenses.*

- *Use overhead # 10*

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- *The coverage ratio is calculated by:*

  (1) Totaling all revenues received during the year, from all sources.

  (2) Totaling all NON-DEBT expenses for the year. This is all operating expenses excluding principal and interest payments. Refer back to overhead # 7.

  (3) Subtracting all non-debt operating expenses from all revenues.

  (4) Divide the result by the yearly debt service expenses.

- *Although bond requirements differ, a coverage ratio of 1.25 is common. Our example has a high coverage ratio - 1.7. This can happen when a system deliberately builds reserves prior to embarking on a big building program to improve its infrastructure.*

- *Again, the coverage ratio, like the operating ratio, is usually computed at the end of the year. It can also be charted to provide a visual aid.*

- *If the coverage ratio drops below the minimum required by the bond or loan requirements, an increase in user charges is generally needed.*

* **Budget vs. Actual Comparisons**

- *Before we start on this section, let's review a couple of points. (1) If your utility offers both water and sewer service, develop separate budgets for each service. (2) At the beginning of the budget year (this may be calendar or fiscal), prepare SEPARATE revenue and expense budgets. We'll tell you more about budget preparation in a later section.*

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- *Budget vs. Actual comparison for revenues:*

- *The budget to actual comparison lets you see how your ACTUAL revenues and expenses compare to your BUDGETED revenues and expenses.*

- *We recommend this comparison be done monthly.*

- *Here's how you do it. Use overhead # 11.*

- *List the amount of revenue budgeted at the beginning of the year.*

- *Next, list the amount of revenue received to date.*

- *Then divide the actual revenue received by the total budgeted. Compare that to the percentage of the year completed.*

- *For example, at the end of September we have these results:*

  Total Revenue Budgeted for year = $1,790,000

  Total Revenue received through Sept. = $424,000

  $424,000/$1,790,000 x 100% = 23.7%

  Three months (July - September) or 25% of the budget year has passed and you've collected only 23.7% of the revenues. This could be a sign that your ACTUAL revenue will not match the BUDGETED revenue for the year. There could be some reason why revenue for that particular quarter is off. One cause may be due to timing. Billing usually lags use by at least one month.

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- *Also, you'll want to look at the individual revenue items to find out which ones are low and why.*

- *It is also helpful to compare the percent of budget received this period to the percentage of revenue received last year at this same time.*

- *If it seems that slow revenues will continue, then you will need corrective action.*

- *Budget vs. Actual comparison for expenses:*

- *A budget vs. actual test for expenses is similar to the one we conducted for revenues.*

- *Use overhead # 12*

- *Here our total budgeted operating expenses for the year is $1,475,000. Actual operating expenses at the end of the first quarter are $375,500.*

- *Calculate the % of budget expenses year to date:*

  $ 375,500/ $1,475,000 x 100% = 25.5%

  We are running slightly higher than expenses budgeted at this point. There may be some good reasons for this.

- *It's a good idea to compare the percentage spent with the percentage from the same time last year and to investigate individual items that are headed over budget.*

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- *It is important that revenues and expenses work together. Look at both budgets. In the case above, actual revenues are lower than actual expenses, so we may be headed for trouble.*

- *Again, it is important to track budget vs. actual revenues and expenses monthly.*

* Capital Investment Ratio

- *Take care of your utility investment by having a healthy capital investment ratio.*

- *The capital investment ratio is a measure of how many resources the utility is putting toward improving and replacing capital assets.*

- *Capital items are components of the utility that have a long life and a substantial cost. Examples are buildings, water and sewer lines, treatment plants, major equipment and vehicles.*

- *Use overhead # 13*

- *Calculate the capital investment ratio at the end of the year by: Totaling all money spent on capital assets and dividing by the total revenues.*

- *We cannot give rules or guidelines for the capital investment ratio. It can be low for a utility with new facilities; high for ones with older facilities.*

- *It's best to judge what your capital investment ratio should be by comparing it to earlier years.*

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Revenues...

...are all monies received for wastewater operations. Get these figures from management, budgets and financial statements.

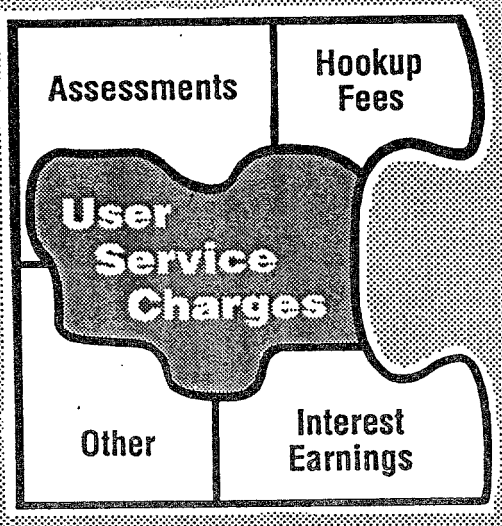

FIGURE 6

Expenses...

...are the costs of operating, maintaining, replacing equipment and paying debt service for a wastewater system.

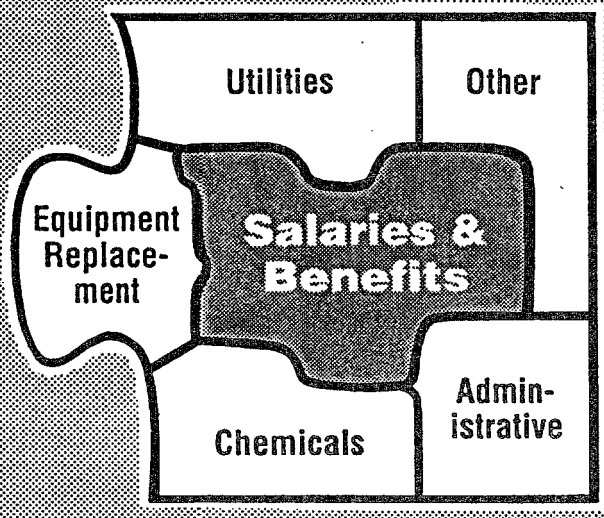

FIGURE 7

OPERATING RATIO WORKSHEET

(Year to Date)

TOTAL REVENUE		
User service charges		$ 1,700,000
Hook-up/Impact Fees		25,000
Taxes/Assessments		10,000
Interest Earnings		50,000
Other Revenue		5,000
Total Revenue		$ 1,790,000
TOTAL OPERATING EXPENSES		
Administration		$ 125,000
Wages		375,000
Benefits		75,000
Electricity		150,000
Chemicals		30,000
Fuel & Utilities		25,000
Parts		20,000
Equipment Replacement Fund		200,000
Principal and Interest Payments		450,000
Other		25,000
Total Operating Expenses		$ 1,475,000
OPERATING RATIO		
Total Revenue		$ 1,790,000
Total Operating Expenses	divided by	$ 1,475,000
Operating Ratio	equals	1.21

FIGURE 8

OPERATING RATIO HISTORY

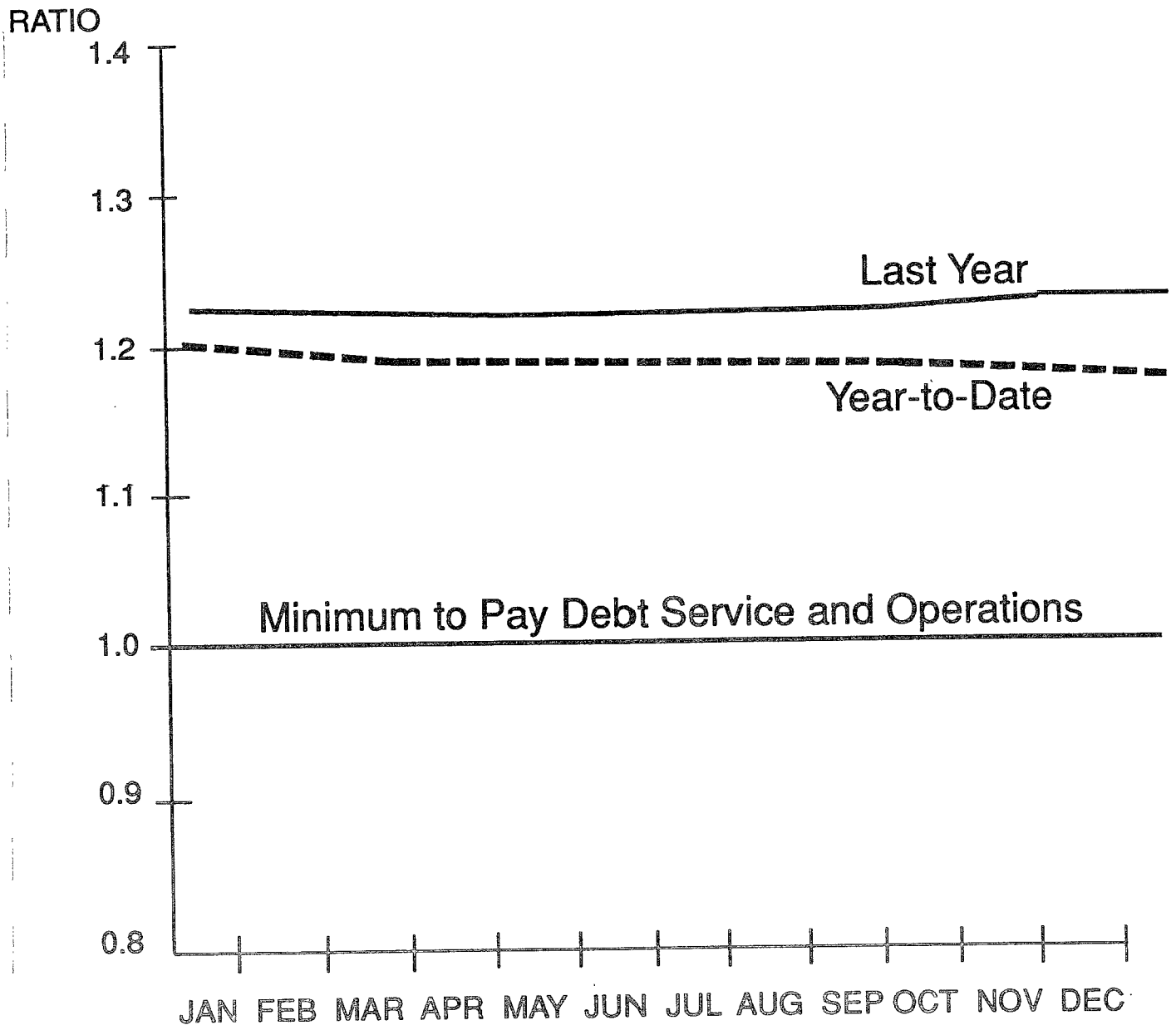

FIGURE 9

COVERAGE RATIO WORKSHEET

Total Revenue $ 1,790,000

minus

Non-Debt Expenses $ 1,025,000

equals

Revenue Available for Debt Service $ 765,000

divided by

Debt Service Expenses $ 450,000

equals

Coverage Ratio 1.7

FIGURE 10

Revenue
Budget vs. Actual

% of Year Completed to Date: 25 %	$ Budget Total	$ Received Current Year To Date	% of Budget Received Current Year To Date	% of Budget Received Last Year To Date
User Charges	1,700,000	400,000	22.3	24.6
Taxes/ Assessments	10,000	5,000	50.0	20.4
Hook-up Fees	15,000	3,000	33.3	28.0
Impact Fees	10,000	5,000	50.0	42.5
Interest	50,000	10,000	20.0	35.7
Other Revenue	5,000	1,000	20.0	25.0
Total Revenue	1,790,000	424,000	23.7	26.4

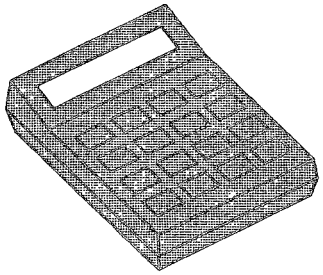

FIGURE 11

Expense
Budget vs. Actual

% of Year Completed to Date: 25 %	$ Budget Total	$ Spent Current Year To Date	% of Budget Spent Current Year To Date	% of Budget Spent Last Year To Date
Administration	125,000	35,000	28.0	30.0
Wages	375,000	100,000	26.7	28.6
Benefits	75,000	20,000	26.7	25.1
Electricity	150,000	40,000	26.7	29.0
Chemicals	30,000	5,000	16.7	20.0
Fuel & Utilities	25,000	5,000	20.0	20.0
Parts	20,000	3,000	15.0	17.0
Equipment Replacement Fund	200,000	50,000	25.0	25.0
Principal & Interest Payments	450,000	112,500	25.0	25.0
Other	25,000	5,000	20.0	15.5
Total Operating Expenses	1,475,000	375,500	25.5	26.7

FIGURE 12

CAPITAL INVESTMENT RATIO WORKSHEET

TOTAL CAPITAL OUTLAYS $ 125,000

divided by

TOTAL REVENUE $ 1,790,000

equals

CAPITAL INVESTMENT RATIO 0.07

FIGURE 13

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III.B. IMPROVE FINANCIAL HEALTH

* Financial Reporting

- *Financial reports are a must! Without them, the manager cannot know how revenue is coming in and how many expenses are being paid out.*

- *The financial reports need to be accurate and timely. By the 10th of the month, you should have adequate financial information to gage the financial health of the previous month.*

- *Here's a financial reporting checklist. Overhead # 14*

- *First, ask whether water and wastewater operations are accounted in a separate enterprise fund.*

- *We've already said that water and wastewater operations need to be accounted separately. But, what's an enterprise fund?*

- *To operate as an enterprise fund means that the water or wastewater utility is operated in a manner similar to private business enterprises. The intent is that the costs of providing the service is recovered primarily through user service charges. Another way to think about it - enterprise funds are self-supporting - the user pays.*

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- *Enterprise-type funds are accounted for on an accrual basis. Under accrual basis accounting, revenues are recorded when they are earned (whether or not cash is received at that time) and expenses are recorded when goods and services are received or incurred (whether cash disbursements are made at that time or not).*

- *The utility revenue and expense reports may be in the form of a hand-entered ledger like this:*

- *Use overhead # 15*

- *Or in the form of computer printouts like these:*

- *Use overhead # 16*

- *Let's go back to the previous overhead. Overhead # 14.*

- *Good financial reports show both budget and actual figures. Refer to overhead # 11.*

- *Reports should be up-to-date for the previous month by the 10th of the following month, and records should be kept for at least 4 years.*

- *Accuracy in reporting is very important. That's why it is important to have yearly audits performed by a CPA.*

- *Certified Public Accountants (CPAs) audit in a form which conforms with Generally Accepted Accounting Principles (GAAP). We have used a simplified approach here.*

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* Purchasing

- *Purchasing is a big part of any water or wastewater operation. How this task is performed affects the budget and level of service.*

- *All utility operations have a purchasing procedure. Some are formal; some are not.*

- *The main purposes of a purchasing system are (1) to get goods and services on time and (2) at the lowest price.*

- *Here are some characteristics of a good purchasing system. Overhead # 17*

- *Centralize purchasing. This allows for better management control and professionalism in the purchasing activity.*

- *Use specifications, particularly for major purchases. You will be more likely to be satisfied with the product if you spend some time defining what you want in the first place.*

- *Use standard quote or bid forms. This makes it easier for you to compare quotes from various sources.*

- *No purchases should be made without a purchase order. Essentially a purchase order specifies the terms and conditions of the purchase such as specification, quantity, price and when delivery is due. This is essential for management control. It also makes bookkeeping easier.*

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- *Have a policy on how to handle emergency purchases. Sometimes you won't have time to get a purchase order written up first or to sent out for quotes. Just don't let all purchases be handled as emergencies.*

- *As soon as goods are received, inspect them for quantity and quality before putting them in stock. Handle problems promptly.*

- *Keep records on inventory stock. Items used by several departments can be purchased more efficiently in bulk. Automatic reorder points can be established. Central warehousing can deter theft and give management better control.*

* **User Service Charge Systems**

- *The following discussion applies to wastewater user service charge systems. The same principles are applicable for water systems.*

- *By now, you realize that the health of the user service charge system is crucial to the entire utility operation.*

- *Use overhead # 18*

- *As we've already mentioned, the user service charge is the central and most important piece of a utility's revenue puzzle.*

- *It usually accounts for 80-90% of a utility's total revenues.*

- *The user service charge system has two parts. One part sets the user rates and the other part collects the money.*

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- *Here are some characteristics of a good user service charge system.*
- *Use overhead # 19*
- *Are costs identified?*
- *Are costs allocated proportional to use?*
- *What are the flow characteristics for each customer class?*
- *Is each customers' use known?*
- *Are customers billed proportional to use?*
- *Does the billing cycle provide timely revenues?*
- *Do your procedures assure collection of delinquent bills?*
- *The rate (along with other minor revenue sources) must cover the FULL cost of providing the service.*
- *For wastewater, the user service charge should charge each user their proportionate share of the operation, maintenance, and equipment replacement costs based on quantity and quality of discharge. If the discharge from all users is substantially equal - as expected from residential customers - then user fees would be based on the volume of wastewater.*
- *But, for commercial and industrial users who discharge high-strength waste, a surcharge should be imposed.*

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- *Know the basis for assessing the customer's use. Wastewater is usually not metered for residential and commercial usage. Normally, usage is based on water meter readings. It may be necessary to adjust water meter readings for water not discharged to the sanitary sewer system. If meters are not used, usage may be a uniform flat charge or based on equivalent dwelling units.*

* **User Service Charge Structures.**

- *Look at the user service charge structure. Are the customers billed proportional to use?*

- *A commonly used rate structure is the <u>uniform flat rate</u> - customers pay the same fee regardless of quantity of use. This is only used on systems where no water meters are available. As you can readily see this structure is unfair. The user will either be paying too much or too little. This structure promotes waste.*

- *Use overhead # 20*

- *The <u>single block rate</u> is recommended. In this structure, each customer pays a minimum bill + a charge per 1,000 gallons (or c.f.) This system is fair because the charge for the service is in direct portion to usage. (Don't forget high strength dischargers have a surcharge added to the usage bill).*

- *The main features of the single block rate structure are a minimum bill + a charge per 1,000 gallons (or c.f.) The minimum bill covers the cost of billing (preparing the bill and postage). The total treatment rate (for wastewater) equals total costs for operation, maintenance, equipment replacement and debt service divided by total volume of treated wastewater.*

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- *Use overhead #21*

- *Another structure is the <u>decreasing block rate</u> - where the price of usage declines as the amount used increases. The decreasing block rate discourages conservation.*

- *And increasing block rate is where the price of usage increases as the amount used increases. The increasing block rate encourages conservation.*

- *Customers accept rates that they view as fair and equal without any special rates for specific customers. This describes a uniform rate structure.*

* **Key Elements of a User Service Charge System for Wastewater**

- *The user service charge should include the costs of transporting and treating inflow/infiltration. When I/I costs cannot be assigned to any particular user or user category, the costs are distributed proportionally among all users. Collect surcharges for high strength wastes. A formula for this charge can be developed.*

- *The key to a good billing and collection system is to make sure that user service charges are collected very soon after providing the service. Time is money!*

- *Establish a policy for collecting delinquent bills. This policy needs to be written; be fair to both the utility and the customers, enforced and tracked.*

- *Remember, user service charges have a short life span. Examine your user service charge yearly and adjust if needed. Keep customers informed at least annually of the current rate structure.*

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- *Be aware that for EPA funded facilities, the utility must comply with these key criteria (most of which have been discussed):*

  a. *Charge each user proportional to quantity and quality of discharge*

  b. *Notify user of rates annually*

  c. *Impose surcharges for wastewater that requires additional treatment*

  d. *Establish a financial management system to account for revenues and expenses*

  e. *Other EPA requirements may apply*

- *Use overhead # 22*

- *There may also be state and local requirements, such as, the accounting system to be used. We've already talked about the accrual method of accounting. Reserve funds may be needed to guarantee minimum coverage ratios on debt.*

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FINANCIAL REPORTING CHECKLIST

Is this done at your utility?

	Yes	No	Unsure
Water and wastewater operations are accounted for in separate *enterprise funds*.			
Each utility uses *accrual accounting* methods.			
Each utility receives monthly reports of revenues and expenses.			
Reports show both budget and actual figures.			
Reports arrive by the 10th day of the following month.			
The utility keeps its financial reports for at least four years.			

FIGURE 14

GENERAL LEDGER				
Anytown, USA				
		Debit	Credit	Balance
Date	Account Name			

FIGURE 15

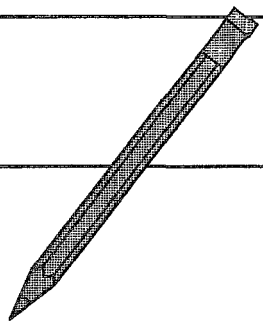
ANYTOWN, USA WASTEWATER DEPARTMENT

LEDGER NUMBER	LEDGER NAME	MTD ACTUAL	TOTAL BUDGET
411 - 5217	Insurance	$436.89	$3,750.00
411 - 5220	Auditing Services	724.22	6,290.00
411 - 5245	Postage	145.87	1,500.00
411 - 5277	Print, Duplicate	1,003.65	9,600.00
411 - 5299	Electric Service	3,309.71	45,000.00
411 - 5223	Water Service	663.37	7,800.00
411 - 5231	Gas Service	4,281.99	35,000.00
411 - 5209	Office Supplies	253.43	2,500.00
411 - 5285	Janitorial Supplies	137.24	1,000.00
411 - 5266	Telephone Service	881.10	10,500.00
411 - 5295	Office Forms	77.53	500.00
411 - 5246	Rent	450.00	5,400.00
411 - 5221	Bad Debt Expense	339.23	3,000.00
411 - 5290	Messenger Delivery	27.45	250.00
411 - 5225	Legal Services	888.56	3,000.00
411 - 5253	Salaries - Regular	1,998.67	28,000.00
411 - 5238	Salaries - Overtime	921.68	10,000.00
411 - 5212	Retirement	256.84	2,200.00

FIGURE 16

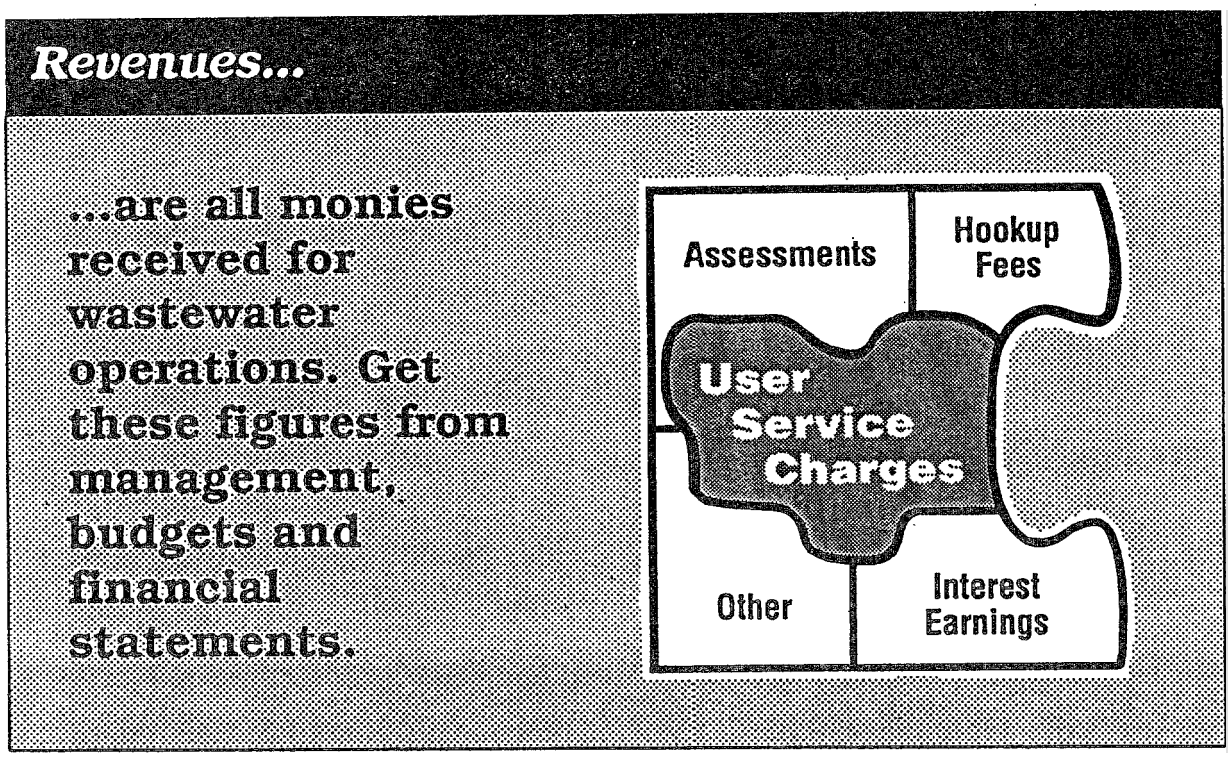
PURCHASING CHECKLIST

Is this done at your utility?



	Yes	No	Unsure
Purchasing is centralized.			
Major purchases are based on specifications that define requirements.			
Standard quote/bid forms are used.			
No purchases are made without a purchase order.			
Exceptions are specified for emergency purchases.			
Goods are inspected immediately for quality and damage.			
Stock quantities are specified for all inventory items.			

FIGURE 17



A **user service charge** is the central and most important piece of a facility's financial puzzle.

FIGURE 18

USER SERVICE CHARGES CHECKLIST

Is this done at your utility?

	Yes	No	Unsure
All costs are identified.			
Costs are allocated proportionately based on use.			
Flow characteristics are known for each customer class.			
Each customer's use is known or fairly estimated.			
Customers are billed proportionately to use.			
Billing cycle provides timely revenues.			
Established procedures assure collection of delinquent bills.			

FIGURE 19

SMITHTOWN, TENNESSEE
SEWER RATE SCHEDULE

- MINIMUM BILL = $2.50
- SEWER USAGE IS AT THE RATE OF $3.50 / 1,000 GALLONS.
- SEWER SERVICE CHARGES WILL BE BASED ON WATER METER READINGS.

FIGURE 20

DETERMINING USER SERVICE CHARGE RATES METERED WATER

Current Wastewater Services Billing Schedule Monthly Rates

Total Gallons Treated *From . . .*	*To . . .*	Rate per 1,000 gallons
0	2,000	$2.00
2,001	4,000	1.90
4,001	6,000	1.80
6,001	10,000	1.50
10,001	Over	1.40

FIGURE 21

SPECIAL USER CHARGE REQUIREMENTS

For EPA-funded facilities, the utility must comply with its EPA-approved user charge system to:

- Charge each user (or user class) its proportionate share of the operation, maintenance and equipment replacement costs based on quantity and quality of discharged wastes.
- Notify users of rates annually.
- Distribute infiltration and inflow costs proportionately among all users.
- Impose surcharges for wastewater that required additional treatment.
- Establish a financial management system to account for revenues and expenses. (For further EPA requirements, see page 23.)

State and local governments may:

- Specify an acceptable accounting system -- how a utility records, classifies and reports information on finances and operations of the system.
- Require certain reserve funds or coverage ratios on debt.

FIGURE 22

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III.C. BUILD FINANCIAL HEALTH

* Improve Budgeting

- *You can build better financial health through improved budgeting for the utility.*

- *The key to good budgeting is to have a thorough understanding of the demands on the utility and the way the utility meets those demands.*

- *Be involved in preparing and using the budget. Then you will have a better understanding of it.*

- *Think of a budget as a financial road map.*

- *We've already discussed the importance of comparing the projected budget to the actual budget at the end of every month. But, how do you prepare a budget?*

- *Start preparing the budget for next fiscal year about 3 months before the end of this fiscal year.*

- *Use Overhead #23*

- *For the <u>expense</u> budget: establish the required debt service costs and reserves. The debt service costs are the annual principal and interest payments on loans and bonds. The debt service reserve are funds set aside to provide additional security for a debt obligation. The amount needed for this purpose is generally specified in loan and bond agreements. The debt service reserve is in addition to your loan repayment.*

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- *Next, establish the equipment replacement fund level. Recall that we defined equipment replacement fund earlier as a fund to be used for replacing equipment necessary to maintain the capacity and performance for which the treatment facility was designed and constructed.*

- *Next, estimate the cost of operating the system. This includes salaries, benefits, chemicals, utilities and administrative costs.*

- *Use Overhead #24*

- *For the revenue budget, try to estimate revenues as accurately as you can. When in doubt, estimate revenues low and expenses high.*

- *Let's take another look at the main revenue and expense components of your utility budget.*

- *Use Overhead #25*

* **Long Range Budgeting**

- *Don't just think short-term or year-to-year. You'll need to develop capital planning skills to build future improvements.*

- *Capital projects are things like new plants or plant expansions, new line extensions, sewer line rehabilitation and so forth.*

- *Capital planning involves figuring out needed improvements; establishing timetables; and developing a financing plan to fund the improvements.*

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WASTEWATER EXPENSE BUDGET
199_____

ADMINISTRATION	$ 125,000
WAGES	$ 375,000
BENEFITS	$ 75,000
ELECTRICITY	$ 150,000
CHEMICALS	$ 30,000
FUEL AND UTILITIES	$ 25,000
PARTS	$ 20,000
EQUIPMENT REPLACEMENT FUND	$ 200,000
PRINCIPAL AND INTEREST PAYMENTS	$ 450,000
OTHER	$ 25,000
TOTAL OPERATING EXPENSES	$ 1,475,000

FIGURE 23

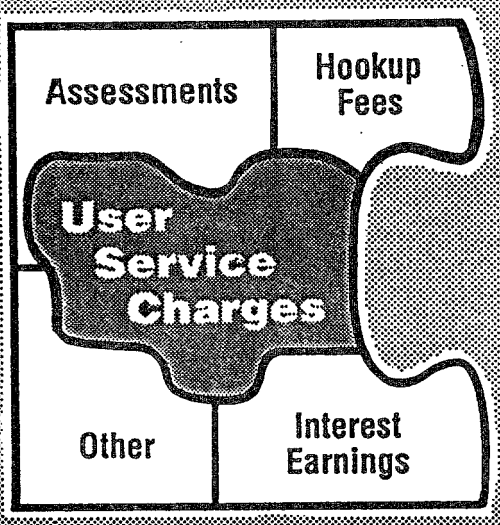
WASTEWATER REVENUE BUDGET
199_____

USER SERVICE CHARGES	$ 1,700,000
HOOK-UP/IMPACT FEES	$ 25,000
TAXES/ASSESSMENTS	$ 10,000
INTEREST EARNINGS	$ 50,000
OTHER	$ 5,000
TOTAL REVENUE	$ 1,790,000

FIGURE 24

Revenues...

...are all monies received for wastewater operations. Get these figures from management, budgets and financial statements.



Expenses...

...are the costs of operating, maintaining, replacing equipment and paying debt service for a wastewater system.

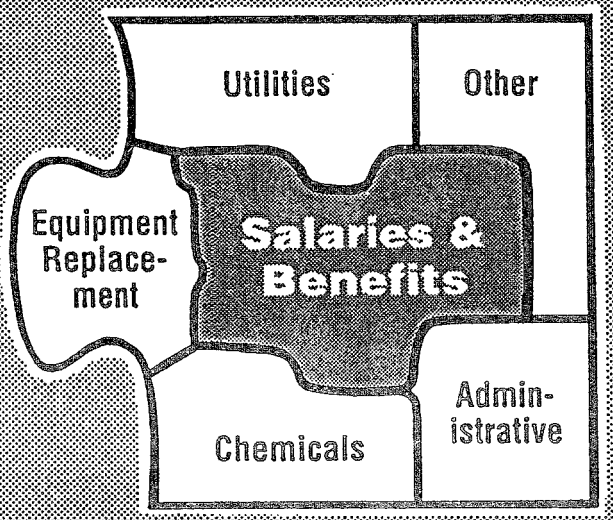


FIGURE 25

III.D. ADDITIONAL FACTORS THAT AFFECT FINANCIAL HEALTH

* Organizational Structure

- *The utility usually operates as an authority or as a municipal department.*

- *Authorities can be regional, municipal or independent. Regional authorities serve more than one political jurisdiction; municipal authorities are owned by the municipality; independent authorities are created by state legislation.*

- *Each structure has advantages and disadvantages. For instance, regional authorities can achieve greater economies of scale; with municipal authorities, the utility is owned by the municipality, but it has operational autonomy which provides insulation from politics. A disadvantage of independent authorities may be their self-perpetuating nature and lack of accountability. However, they are almost always created to serve a need no other agent is able to serve.*

- *When the utility is structured as a department within the local government, it has support from other local government departments. But, it is subject to political influences.*

- *Any organizational structure can work if it is financially self-sufficient and well managed.*

- *An organizational structure that is politically independent may be better able to control the rate setting process.*

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* Staff Training

- *Studies of water and wastewater plants' performance cite operators and staff with insufficient experience and training as a major factor in poor performance of the facility.*

- *Many plants are being operated by personnel who do not meet state certification requirements. Frequently, these are poorly performing facilities.*

- *It is important to include money for staff training in the utility budget. This often helps acquire and retain quality people.*

- *Better trained staff can more effectively utilize supplies and cut equipment replacement costs by performing better maintenance.*

* Personnel Turnover

- *Staff who are supported by adequate training opportunities are generally more satisfied.*

- *Wastewater treatment is frequently considered a low prestige field.*

- *Small communities often do not pay operators enough to retain qualified personnel. This costs the community more in the long run because poor operations means more equipment breakdowns due to poor maintenance knowledge.*

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* Operating Procedures and Policies

- *Written operating policies and procedures are an earmark of a well-managed operation.*

- *It is not enough to develop a sewer use ordinance or connection charge policy and put it on the shelf. It must be followed and periodically updated.*

- *One problem with having consultants develop all your written procedures, is that the community may not buy-in or fully understand the significance of procedures.*

- *Communities must be intimately involved in the process and the final product.*

* Customer Relations

- *As you will see in a later section, it is vital to have the customers on your side.*

- *The customers should understand the value of the service your facility provides. This is necessary to gain community acceptance and support to carry out the programs you need. Such as, a new plant expansion, sewer extensions to a new area, a rate increase, etc.*

- *Building good customer relations takes some effort, but it's worth it.*

- *Public relations efforts involve public meetings, plant tours, citizen advisory boards and media coverage.*

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